

The genus *Pseudoxomysis* (Crustacea: Mysidacea: Mysidae: Leptomysini), with description of a new species from the Timor Sea

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Abstract.—Two species of *Pseudoxomysis* are discussed. The present occurrence of *P. caudaensis* in coastal waters of Indonesia is only the second record for the species since Nouvel established it based on specimens from Vietnam. A new species, *Pseudoxomysis incisa*, is described from the Sahul Shelf, Timor Sea. The new species is distinguished from the other species of the genus, *P. caudaensis*, by the smooth body, the third segment of the mandibular palp furnished with two series of setae on the outer margin, the endopod of the fourth male pleopod extending to the distal end of the fourth exopod segment, and the endopod of the uropod armed with 50 spines on the inner margin.

The genus *Pseudoxomysis* was established by Nouvel (1973) to accommodate *P. caudaensis* collected from near Nha Trang, Vietnam. At that time he moved *Doxomysis longiura* Pillai, 1963, to this genus. Since then, no further reports of this genus have been presented. The *Pseudoxomysis* specimens in my possession are composed of two species, *P. caudaensis* Nouvel, 1973, and an undescribed species. Those identified as *P. caudaensis* were collected in Tegal, located in the northern coast of Java Island, Indonesia, by Mulyadi and were presented in my study. The specimens of the supposed new species were collected off the Sahul Shelf in the Timor Sea during a cruise (KH-72-1) of *Hakuho Maru* of the Ocean Research Institute, University of Tokyo. This latter species is described herein. All the specimens examined are deposited in the National Science Museum, Tokyo (NSMT).

Systematics

Genus *Pseudoxomysis* Nouvel, 1973

Pseudoxomysis Nouvel, 1973: 131-132.

Diagnosis.—Carapace produced anteri-

orly into triangular rostral plate with rounded apex. Antennal scale lanceolate with rounded apex, setose all around. Labrum provided with strong frontal process. Distal segment of endopod of maxilla expanded distally, shorter than broad, distal margin nearly straight, with about 10 similar-sized strong spines, outer margin naked, clearly longer than inner. Endopods of third to eighth thoracic limbs with carpopropodus divided into 3 subsegments by transverse articulation, terminal claw setiform. Exopod of fourth pleopod of male 7-segmented; ultimate segment small, with 2 simple setae on terminal end, penultimate and antepenultimate segments armed with strong modified seta. Endopod of fourth pleopod of male 6-segmented, considerably shorter than exopod, without modified setae. Female pleopods rudimentary. Female with 3 pairs of oostegites. Endopod of uropod armed with spines along inner margin. Telson with deep apical incision furnished with spinules on either side and pair of plumose setae arising from anterior end. Lateral margin of telson with spines throughout.

Type species.—*Pseudoxomysis caudaensis* Nouvel, 1973.

Remarks.—Nouvel (1973) mentioned

three major characters that distinguish *Pseudoxomysis* from the closely allied genus, *Doxomysis*, and its related genera, as follows; the labrum with a strong frontal process, the distal endopod segment of the maxilla with the outer margin longer than the inner, and the endopods of the third to eighth thoracic limbs with the carpopropodus divided into 3 subsegments by the transverse articulation.

When Nouvel (1973) established *Pseudoxomysis*, he suggested that *Doxomysis longiura* Pillai, 1963, should be transferred to this genus, because *D. longiura*, described and illustrated by Pillai (1963, 1964), was in agreement with this genus in the characteristics of the maxilla and thoracic endopods, and with respect to the labrum he received a private letter from Pillai that the lip is anteriorly prolonged into a spine though short and apically broad and rounded (Nouvel 1973). In 1973, however, Pillai described and illustrated this species in detail, but omitted to describe the labrum. Liu & Wang (1986) also examined *D. longiura* specimens from northern areas of the South China Sea and stated that the anterior margin of the labrum was not armed with a spine.

At least, the labrum in *D. longiura* lacks such a strong frontal process as seen in *P. caudaensis*. Furthermore, *D. longiura* is different from *Pseudoxomysis* in having a notable papilla on the eyestalk and fine spinules between proximal two lateral spines of the telson. Considering these circumstances, it is judged that the transfer of *D. longiura* to *Pseudoxomysis* should be canceled. As a result, the genus *Pseudoxomysis* comprises only two species which are described in this paper.

Pseudoxomysis caudaensis Nouvel, 1973
Figs. 1, 2

Pseudoxomysis caudaensis Nouvel, 1973:
132–141, figs. 1–25.

Material.—(NSMT-Cr 13404) 1 adult female with embryos (5.4 mm), 1 adult male

(4.5 mm), 1 immature female with half-grown marsupium (4.4 mm) and 1 juvenile (2.7 mm); Tegal, northern coast of central Java, Indonesia, 3 June 1994, plankton net, collected by Mulyadi.

Description.—Carapace produced anteriorly into triangular rostral plate with rounded apex extending to proximal third of first segment of antennular peduncle (Fig. 1A, B), posteriorly shortened, last 2 thoracic somites visible dorsally. Anterolateral corner of carapace rounded.

Eye slightly compressed dorso-ventrally, 1.5 times as long as broad; cornea developed, as broad as eyestalk; eyestalk 1.5 times longer than cornea, without papilliform process on dorsal surface (Fig. 1A, B).

Antennular peduncle of female more slender than that of male; first segment twice as long as broad, armed with several setae at outer distal corner and 1 seta at inner distal corner; second segment short, wider than long, armed with 1 long seta near distal end of inner margin and 1 short seta on middle of outer margin; third segment connected with second obliquely, as long as first, twice as long as broad, armed with 1 long seta on middle of inner margin and 1 short and 2 long setae at inner distal corner (Fig. 1A). In male, first peduncular segment 1.5 times as long as broad, armed with several setae at outer distal corner and 1 seta at inner distal corner; second segment short, armed with 1 short seta on middle of outer margin, no setae on inner margin; third segment longer than first, 1.5 times as long as broad, armed with 1 long and 1 minute setae at inner distal corner (Fig. 1B).

Antennal scale extending slightly beyond distal margin of antennular peduncle in female and to distal end in male, lanceolate with rounded apex, more than 6 times as long as widest part at proximal fourth; outer margin nearly straight, apical suture at about distal tenth (Fig. 1C). Antennal peduncle barely reaching middle of scale, 3-segmented, second segment longest (Fig. 1C). Antennal sympod with 1 stout spine at anterolateral corner (Fig. 1C).

Mandible with masticatory edge developed; palp narrow, third segment half as long as second, with 7 feathered setae on distal third of outer margin (Fig. 1D). Maxillule with outer lobe armed with 12 stout spines on distal margin and 3 setae on ventral surface; inner lobe armed with 3 strong and 1 slender setae on distal margin, 4 setae on outer margin, 2 setae on inner margin and 4 setae on ventral surface (Fig. 1E). Maxilla with second segment of endopod greatly expanded distally, shorter than broad; outer margin naked, 1.5 times longer than inner, so that distal margin clearly inclined towards mouth; distal margin very slightly concave, nearly 3 times as broad as at base, armed with 9 strong spines and 2 setae; inner distal corner with 6 barbed setae (Fig. 1F). Labrum with strong frontal process (Fig. 1G).

Endopod of first thoracic limb robust; lobe from basis rather small, armed with many stout plumose setae; preischium and ischium expanded medially, wider than long; merus relatively slender, twice as long as broad; dactylus wider than long, furnished with stout setae (Fig. 1H). Endopod of second thoracic limb rather slender; merus as long as carpopropodus and dactylus combined; dactylus as long as broad, armed with setae arranged radially (Fig. 1I). Endopods of third to eighth thoracic limbs lost in all specimens. Exopods of first to eighth thoracic limbs with flagelliform portion 8- or 9-segmented; basal plate small, with outer distal corner pointed (Fig. 1H, I).

First to fifth abdominal somites subequal, sixth somite 1.5 times longer than fifth. Second to sixth abdominal somites hispid. Each of second to fifth abdominal somites with small process along ventral median line.

Pleopods of male biramous, natatory. First pleopod with endopod reduced into short, unsegmented lobe, exopod 7-segmented (Fig. 2A). Second and third pleopods with 7-segmented exopod and 6-segmented endopod, exopod longer than endopod. Exopod of fourth pleopod slightly

less than twice as long as endopod, 7-segmented, ultimate segment small, with pair of simple setae on terminal end; penultimate segment 3 times as long as ultimate segment, with 1 strong seta overreaching tip of terminal setae for half of its length; antepenultimate segment shorter than succeeding one, with 1 strong seta extending slightly beyond apex of terminal setae; each of proximal 4 segments with pair of ordinary plumose setae (Fig. 2B). Endopod of fourth pleopod 6-segmented, only extending to distal margin of third segment of exopod, without modified setae (Fig. 2B). Endopod of fifth pleopod 6-segmented, first segment with triangular lobe tipped with seta on outer margin in addition to usual side lobe; exopod 7-segmented, longer than endopod (Fig. 2C).

Endopod of uropod overreaching distal end of telson for $\frac{1}{4}$ of its length, armed along inner margin with about 37 spines of variable length (Fig. 2D, E). Exopod of uropod overreaching apex of telson for more than $\frac{1}{2}$ of its length (Fig. 2E).

Telson (Fig. 2E, F) as long as last abdominal somite, 1.7 times as long as broad at base, abruptly narrowing towards proximal third, parallel-sided in middle third and then gradually narrowing distally. Lateral margin armed with about 21 spines throughout, spines longer in female than in male; each apex with single stout spine. Apical cleft $\frac{1}{3}$ as long as telson and U-shaped in female, $\frac{1}{4}$ as long and V-shaped in male, furnished on either side with 2 distal spines and 16–18 spinules; pair of plumose setae arising from anterior end of cleft.

Remarks.—The present specimens agree in main characteristics with the description of *Pseudoxomysis caudaensis* Nouvel, 1973, but some minor differences are apparent. The endopod of the fourth male pleopod is slightly less than half as long as exopod and extends to the distal end of the third segment of the exopod in the present specimen, while in the type specimens it is slightly more than half as long as exopod

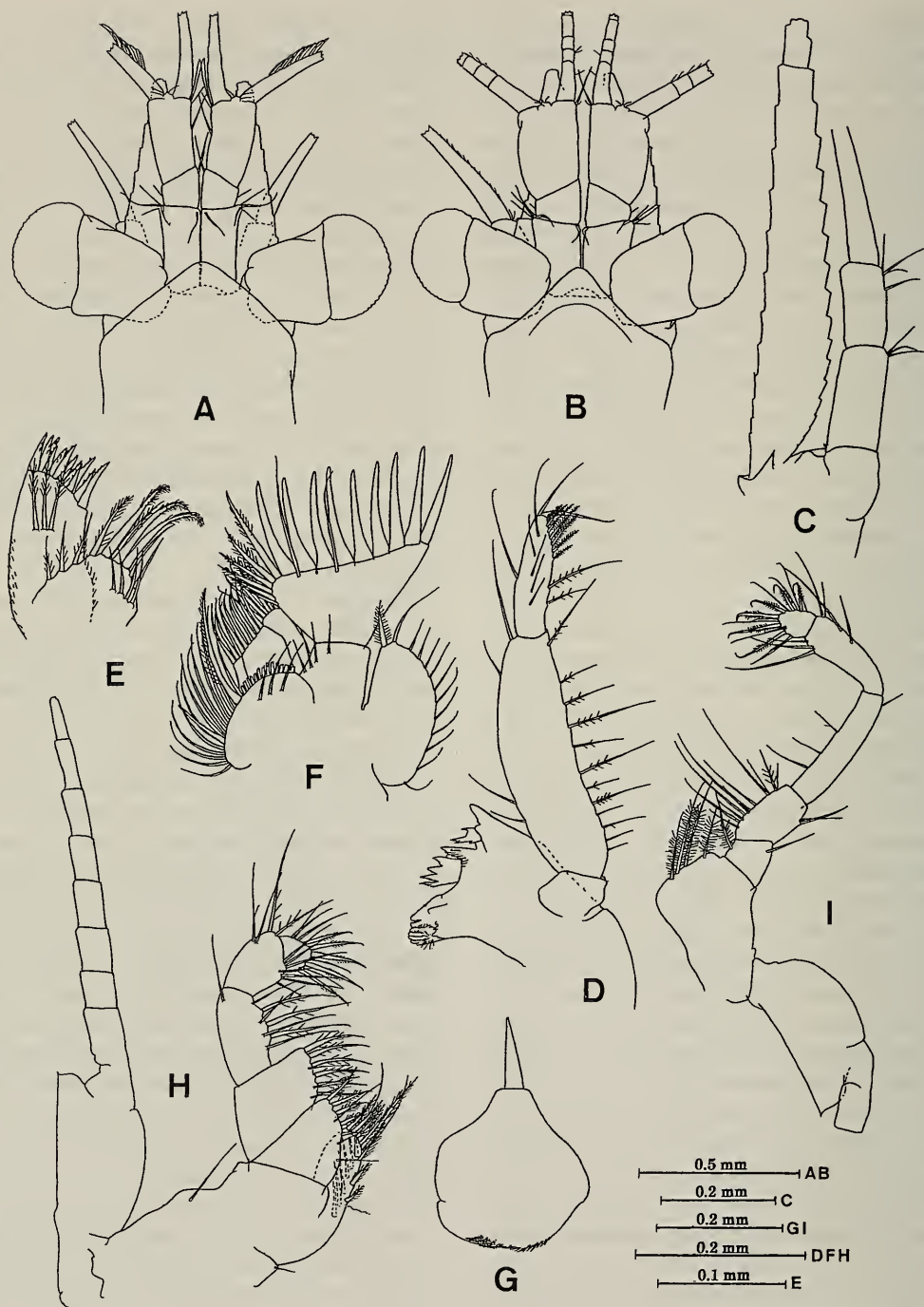


Fig. 1. *Pseudoxomysis caudaensis* Nouvel, A, C-I, adult female; B, adult male. A, anterior end of adult female; B, anterior end of adult male; C, antenna; D, mandible and mandibular palp; E, maxillule; F, maxilla; G, labrum; H, first thoracic limb; I, endopod of second thoracic limb.

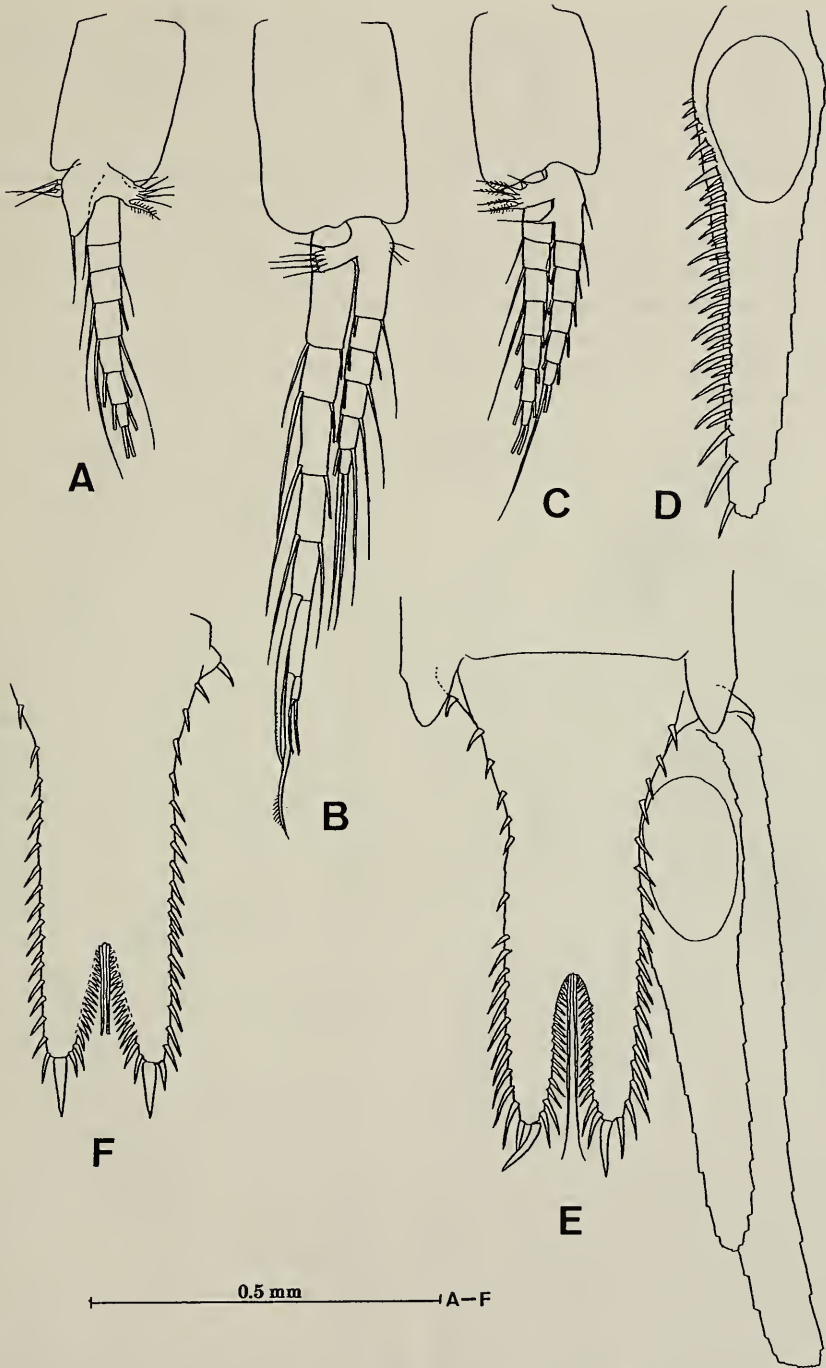


Fig. 2. *Pseudoxomysis caudaensis* Nouvel, A-C, F, adult male; D, E, adult female. A, first pleopod of male; B, fourth pleopod of male; C, fifth pleopod of male; D, endopod of uropod; E, uropod and telson, female; F, telson, male.

and extends to the middle of the third segment. In the type specimens the telson is narrower and several proximal lateral spines arise from the dorsal surface rather than from the lateral margin, while in the present specimens the spines arise from the lateral margin.

Distribution.—The type specimens were collected from Cauda Bay near Nha Trang, Vietnam, and the present specimens from Tegal, northern coast of the central Java, Indonesia. This species seems to be a coastal form in Southeast Asia.

Pseudoxomysis incisa, new species

Figs. 3, 4

Type series.—Holotype (NSMT-Cr 13401), adult male (6.4 mm); allotype (NSMT-Cr 13402), adult female with embryos (5.4 mm); paratypes (NSMT-Cr 13403), 6 adult males (5.2–5.8 mm), 6 adult females (4.7–5.9 mm), 3 of which (4.7, 5.6, 5.9 mm) bear embryos; Sahul Shelf, 12°17.3'S, 129°40.9'E to 12°17.2'S, 129°41.8'E; 49–52 m; 24 June 1972; collected with plankton net installed in mouth of 3-m beam trawl during Hakuho Maru Cruise (KH-72-1).

Other material.—17 adult males (5.2–6.4 mm), 13 adult females (4.7–5.9 mm), 4 immature males, 9 immature females; collection data same as type series.

Description.—Body smooth. Carapace produced frontally into triangular rostral plate with narrowly rounded apex extending to proximal third to middle of first segment of antennular peduncle, lateral margin of rostrum slightly concave or straight (Fig. 3A, B). Anterolateral corner of carapace rounded. Posterior margin slightly emarginate, leaving last 2 thoracic somites exposed dorsally.

Eye relatively large; cornea occupying about half of whole eye, slightly wider than eyestalk; eyestalk hispid on proximal corners, without papilliform process on dorsal surface (Fig. 3A, B).

Antennular peduncle of male more robust

than that of female. In male first segment with several setae on anterolateral corner and 1 seta on anteromedial corner, second segment shortest, third segment about as long as first, 1.3 times longer than broad, with 3 setae on anteromedial corner (Fig. 3A). In female first segment more than twice as long as broad, second segment with 1 seta on anteromedial corner, third segment slightly shorter than first, slightly less than twice as long as broad, with 1 seta on middle of medial margin and 6 setae on anteromedial margin (Fig. 3B).

Antennal scale lanceolate with rounded apex, extending beyond distal end of antennular peduncle for 1/7 of its length in male and for 1/6 in female, about 5.5 times as long as maximum breadth at about proximal third, with suture at distal tenth, setose all around; inner margin convex; outer margin straight (Fig. 3A–C). Antennal peduncle short, reaching middle of antennal scale, second segment longest. Antennal sympod with spine at anterolateral corner.

Mandible with masticatory edge developed. Mandibular palp narrow, third segment half as long as second, outer margin armed with 2 series of setae, 10 proximal setae becoming longer distally, feathered on proximal half, 5 distal setae of equal length feathered along whole length (Fig. 3D). Maxillule, outer lobe armed with 11 stout spines on distal margin and 3 setae on ventral surface; inner lobe armed with 3 strong and 1 slender setae on distal margin, 4 setae on outer margin, 3 setae on inner margin and 7 setae on ventral surface (Fig. 3E). Maxilla with second segment of endopod greatly expanded distally, outer margin longer than inner, naked, distal margin truncate, 3 times broader than basal margin, armed with 9 stout, naked spines, outer 2 spines, especially outermost one, considerably longer than others (Fig. 3F). Labrum armed on frontal margin with pointed, long, robust process (Fig. 3G).

Endopod of first thoracic limb robust; lobe from basis armed with many stout plumose setae, preischium and ischium ex-

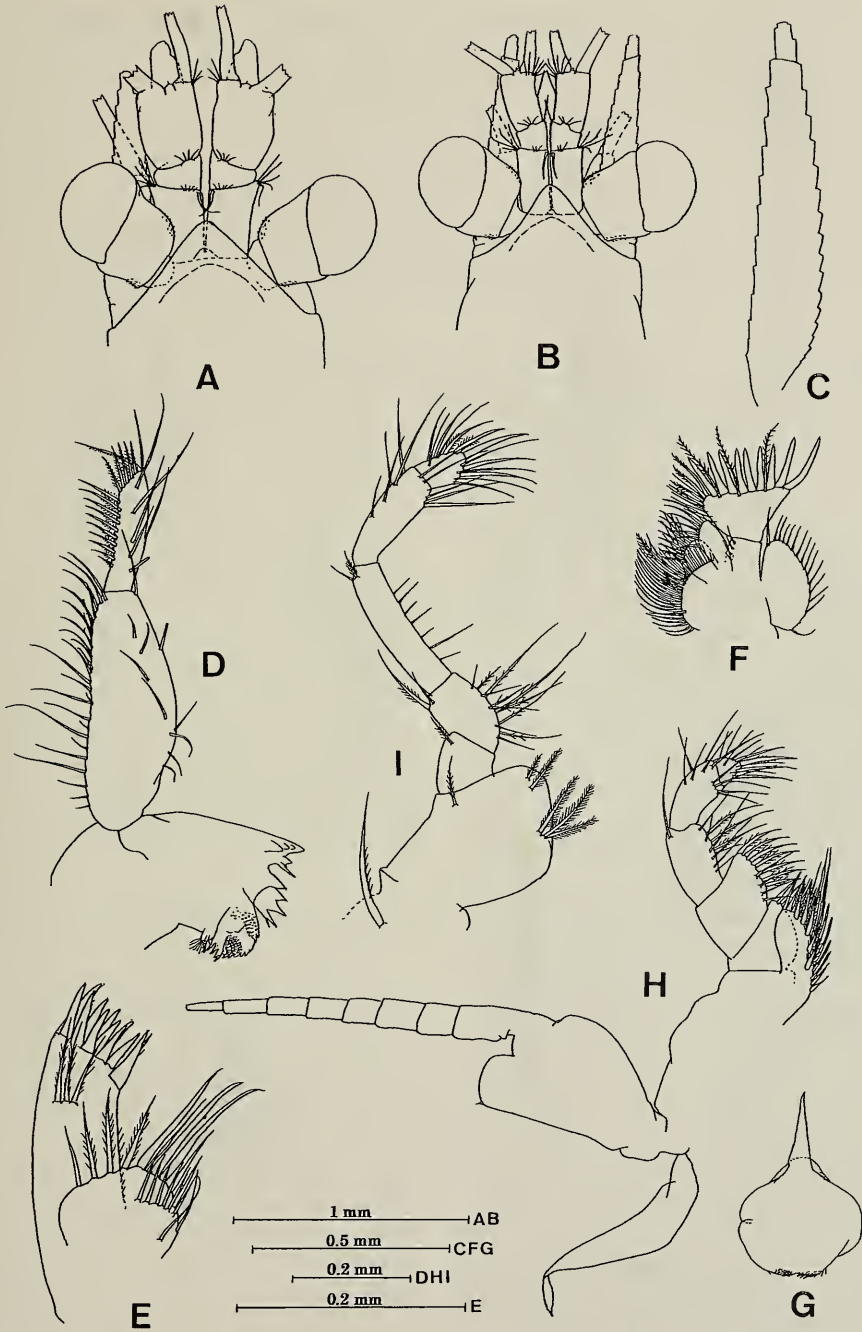


Fig. 3. *Pseudoxomysis incisa*, new species, A, C-I: holotype; B: allotype. A, anterior end of adult male; B, anterior end of adult female; C, antennal scale; D, mandible and mandibular palp; E, maxillule; F, maxilla; G, labrum; H, first thoracic limb; I, endopod of second thoracic limb.

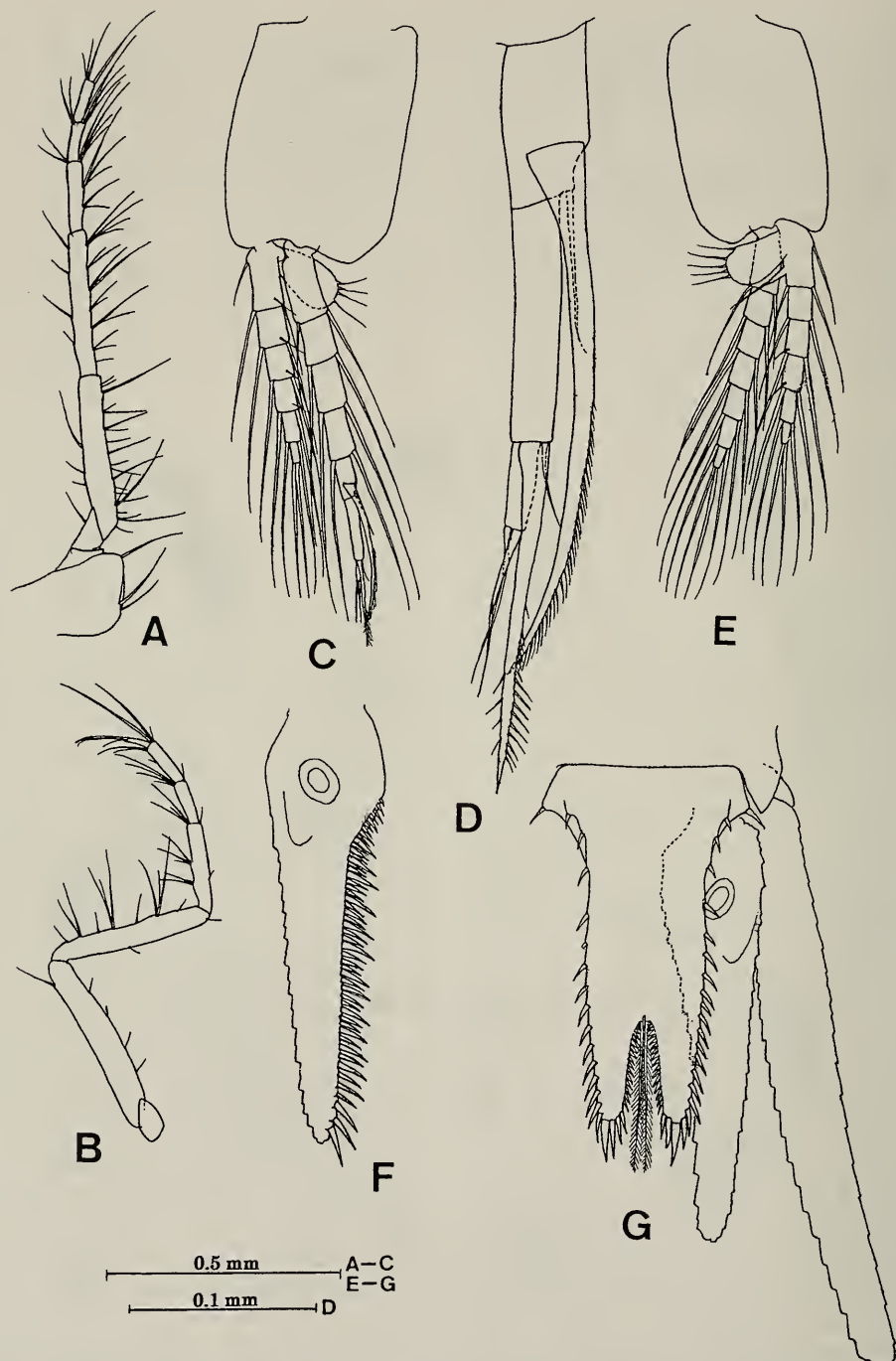


Fig. 4. *Pseudoxomysis incisa*, new species, A, allotype; B, one of male paratypes; C-G, holotype. A, endopod of third thoracic limb without dactylus; B, endopod of seventh thoracic limb; C, fourth pleopod of male; D, distal part of exopod of fourth male pleopod; E, fifth pleopod of male; F, endopod of uropod; G, uropod and telson.

Table 1.—Morphological differences between *Pseudoxomysis caudaensis* Nouvel, 1973 and *P. incisa*, new species.

	<i>P. caudaensis</i> Nouvel, 1973	<i>P. incisa</i> , new species
Abdomen	Hispid	Smooth
Mandibular palp	Third segment with a single series of setae on outer distal margin	Third segment with 2 series of setae on outer margin
Fourth pleopod of male	Exopod slightly less than twice as long as endopod; endopod extending to middle to distal end of third exopod segment	Exopod 1.5 times as long as endopod; endopod extending to distal end of fourth exopod segment
Uropod	Endopod armed with 37 spines along inner margin; exopod overreaching distal end of telson for more than $\frac{1}{2}$ of its length	Endopod armed with about 50 spines along inner margin; exopod overreaching distal end of telson for nearly half of its length

panded medially, wider than long, merus relatively slender, twice as long as broad, dactylus wider than long, hirsute (Fig. 3H). Endopod of second thoracic limb rather slender, merus as long as carpopropodus and dactylus together, dactylus longer than broad, with terminal claw strong (Fig. 3I). Endopods of third to eighth thoracic limbs slender, with carpopropodus divided into 3 subsegments by transverse articulations (Fig. 4A, B).

First 5 abdominal somites subequal, sixth somite 1.3 times longer than preceding one.

Male pleopods developed, biramous. First pleopod with unsegmented endopod and 7-segmented exopod. Second and third pleopods with 7-segmented exopod and 6-segmented endopod, endopod shorter than exopod. Exopod of fourth pleopod 1.5 times longer than endopod, 7-segmented; antepenultimate segment shorter than preceding one, armed with 2 setae, one short, arising from outer distal corner, the other markedly robust, arising from near distal end and reaching tip of terminal setae, curved inwardly; penultimate segment 1.5 times longer but narrower than preceding one, armed with 2 unequal setae on distal margin, shorter one as long as ultimate segment, longer one 1.5 times longer than segment supporting it, straight, with short spine-like setae on distal half; ultimate seg-

ment small, nearly $\frac{1}{3}$ of preceding one in length, armed with 2 naked, equal-sized setae on distal end (Fig. 4C, D). Endopod of fourth pleopod extending to distal margin of fourth segment of exopod, 6-segmented, without modified setae, first 4 segments with naked accessory seta (Fig. 4C). Fifth pleopod with 7-segmented exopod and 6-segmented endopod; first segment of endopod with slender lobe tipped with seta in addition to usual side lobe; third and fourth segments of endopod with naked accessory seta (Fig. 4E). Side lobe on second to fifth endopods broad (Fig. 4C, E).

Uropod slender, setose all around; endopod extending beyond distal end of telson for $\frac{1}{4}$ of its length, furnished with about 50 spines on inner margin from statocyst region to apex; exopod overreaching telson for nearly half of its length (Fig. 4F, G).

Telson slightly shorter than last abdominal somite, 1.7 times as long as maximum basal width, abruptly narrowing near base, then gradually towards apex. Lateral margin of telson armed with 16–19 acute spines arranged sparsely in proximal half and densely in distal half, proximalmost spine stout, arising at widest part, proximal second and third spines arising from dorsal surface near margin. Each apical lobe armed with 1, occasionally 2, strong spines on apex and 2 spines near distal end of cleft

margin. Cleft extending to about $\frac{1}{3}$ of telson length, armed with 16 or 17 spinules on either side, anterior end with pair of plumose setae between which small sinus is present (Fig. 4G).

Etymology.—The specific name *incisa* is from the Latin *incisus* = cut into, derived from *caedo* = to cut, in reference to the apical cleft of the telson.

Remarks.—The present new species distinctly belongs to the genus *Pseudoxomysis* in the characters of the maxilla, labrum and third to eighth thoracic endopods. From the other species of the genus, *P. caudaensis*, the new species is distinguished as shown in Table 1.

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